ER Site No. 57: Workman Site

ADS: 1334
Operable Unit: Central Coyote Test Area

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Site History

ER Site 57 is identified as the Workman Site in the Hazardous and Solid Waste Amendments Act (HSWA) Module. For investigation purposes, it was divided into two subsites; 57A and 57B. Both sites were used during World War II for the development of the proximity fuze - a radar-activated, variable-timed bomb fuze used in antiaircraft defense munitions. Site 57A Workman Site: Firing Site is the area where a variety of artillery pieces were used to fire test shells at targets suspended between the two former towers at Site 57B, Workman Site: Target Area, located approximately 2 miles to the east.

ER Site 57A:
Site 57A is an inactive site located on the northeast corner of the intersection of Isleta and Lovelace Roads and covers approximately 4.22 acres of federally owned land controlled by the United States Air Force (USAF). Site 57A includes two small buildings (Buildings 9902 and 9900), five concrete slabs, two concrete gun mount positions, a set of three utility poles set around a fixed metal plate, and an underground bunker. Three debris mounds, containing burned trash, were sampled and removed as a Voluntary Corrective Measure (VCM) in January 1997.

The largest concrete pad, Pad 1, is 45 ft by 260 ft (estimated) and is aligned roughly north-south in front of the gun mount positions. The pad was apparently placed to aid in gun maintenance, gun removal and placement, and to suppress airborne dust and dirt entrained in the muzzle blast when the guns were fired. Five stained areas on the slab are visible in an early site aerial photograph. Four of the stained areas correspond to known gun mount positions. At some period following activities at this site, Pad 1 was almost entirely covered with 2 to 3 ft of soil. Only the

southernmost corners were left exposed. Two concrete gun mounts are still visible south of Building 9902. The former building foundation at the north end of the slab is actually a few rows of concrete blocks that rise above the soil covering the slab. The floor of this former building is actually the surface of Pad 1.

Due west of Pad 1 are buildings 9902 and 9900. Building 9902 is a 7-ft by 10-ft concrete building topped with a bi-level observation platform. Building 9900, is a 13 ft by 14-ft cinder block structure that bears signs indicating it was once used for flammable liquid (gasoline) storage.

A 22-ft by 40-ft concrete slab north of Building 9900 is the foundation for a former building that reportedly was used at various times as a wind tunnel and machine shop. An empty electrical conduit present on the west side of the slab was removed during the VCM to remove the debris mounds. The 10-ft by 20-ft fenced area at the north end of Site 57A encloses a 6-ft by 10-ft slab that was the location of a power transformer.

East of Pad 1 is a test structure with an unknown purpose and history. It consists of three wood utility poles arranged around a 6 ft by 14 ft steel plate that is anchored to an underlying solid concrete slab. A cable system strung between the poles was apparently used to suspend objects over the plate. The steel plate has several impact "dimples" and is bolted around its perimeter to the underlying slab. The steel plate has two 2.5-in. wide openings that connect to a set of dual pipes originating in a wooden box about 20 ft to the west. Adjacent to the pipe box is a 9.5 ft by 24.5 ft concrete slab that is open in the center.

At the southwest end of Pad 1 is the entrance to an underground bunker. This structure consists of two rooms connected by a short passageway. The main entrance hatch leads down via a crumbling wooden ladder into a 12-ft diameter, circular metal-walled room with a dirt floor. A heavy metal door separates this room from the passageway that leads to 6.5 ft wide by 10 ft long concrete-walled and floored room. This room has a floor drain and another hatchway. This hatchway is secured closed and covered with soil and rubble on the ground surface. A series of de-energized electrical outlets and light fixtures are mounted on the south wall of this room. The bunker floor is 9 ft below grade and the rooms are 7 ft high.

The underground bunker contained several 5-gal and 10-gal containers or waste in addition to solid waste debris comprised of wood and wire. It is not known when the waste was emplaced in the bunker. All containerized waste was removed from the bunker under a VCM conducted by KAFB in June 1994.

A 28-ft square concrete slab, Pad 2, is just west of the underground bunker. This slab has lightweight strap anchoring bolts and a thin metal plate surrounding by a metal edging set into the center of the surface.

Three debris mounds containing burned wood, metal cans, wire, and concrete pieces were present at this site. One mound, Mound 3, was created after Pad 1 was covered over since it rested atop the soil covering Pad 1. The debris mounds, and other scrap materials scattered across the site, were removed during a Voluntary Corrective Measure (VCM) in January 1997.

ER Site 57A was constructed around 1942 and proximity fuze testing activities continued until about 1948. This agrees with a 1951 aerial photograph which shows the burial mounds at adjacent ER Site 11, thought to have been created during the decontamination and decommissioning of ER Site 57A, are present (ER Site 11). Later testing activities of an unknown nature are responsible for the construction of the utility pole and metal plate area, concrete Pads 2 and 3, and the underground bunker. Between 1975 and 1985, unspecified equipment from blast overpressure testing at the Nevada Test Site by the military was reportedly brought back and stored at Site 57A. This equipment and the proximity fuze testing equipment were removed prior to 1985.

ER Site 57B:

ER Site 57B, Workman Site: Target Area, is located approximately 2 miles east of ER Site 57A, at the east end of Isleta Road and south of the Starfire Optical Range. Site 57B covers approximately 11.13 acres on United States Air Force (USAF) land withdrawn from the U.S. Forest Service. Proximity fuze test shells were fired from Site 57A at targets (car bodies, old airplane fuselages, or chicken-wire mock-ups) that were suspended between the two former 300-ft high towers at Site 57B.

ER Site 57B contained dry-cell battery debris, the remains of two 300-foot tall, triangular-shaped wood towers, and two possible blast pits. The tower remnants included concrete footings with steel tower supports, abundant burned wood, and numerous large metal bolts and fasteners. The tower debris was mainly scattered between and concentrated at, the tower bases. The tower base remnants include the concrete footings, and steel bases, and burned wood and metal fasteners scattered between and at the bases of the towers. Two small metal and one wood equipment boxes were mounted on poles located between the tower bases. Weathered dry-cell battery packs were scattered on the ground by these boxes and at the south tower base. Two pits east of the north tower base appear to be blast pits because of their conical shapes. A debris mound of demolition rubble extended for about 700 feet along west side of the site. Debris in the mound included wire, cable, concrete (including cut concrete and rebar), asphalt, and granite boulders. The mound material was inspected by members of the NM Environment Department Solid Waste Bureau, and determined to be "clean fill material." The material was removed to the KAFB landfill in June-July 2001.

The proximity fuze development activities associated with the Workman sites took place between 1942 and 1948. Sandia National Laboratories/New Mexico (SNL/NM) used the towers in 1956 for meteorological monitoring during the Project 56 (Moonlight Shot) testing at nearby Site 71 (ER Site 71). Between 1950 and 1960, SNL/NM reportedly conducted earth penetration tests in which 50-caliber of larger guns were fired from the top of the towers in the ground. The towers were razed before mid-1980 because their deteriorated condition made them a safety hazard. Based on aerial photo review, the clean fill mound was constructed between 1975 and 1983, and no debris was added after 1983.

Previous Investigations - ER Site 57 was identified during investigations conducted under the Comprehensive Environmental Assessment and Response Program (CEARP) and during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). The CEARP

investigation reported that SNL/NM and the military conducted a cleanup of Site 57A in the early 1980s, but no records have been located to document the cleanup. The RFA determined that the Workman Site did not meet the regulatory definition of a Solid Waste Management Unit (SWMU); nevertheless, a hazardous source may be present at the site.

In December 1993, KAFB Explosive Ordnance Disposal conducted a surface unexploded ordnance (UXO) and high explosive (HE) survey at Sites 57A and 57B. No live UXO/HE or UXO/HE debris was found at either site.

In March 1994, RUST Geotech Inc. completed a surface gamma radiological survey of Site 57A. One point source with up to 1,400 counts-per-second (cps) and two area-source anomalies were identified. The point source had the characteristics of a radioactive depleted uranium fragment and was removed for disposal. The two area-source anomalies were associated with granitic rock types used as base rock at the entrance to Building 9900 and as aggregate in two concrete posts. Both area-source anomalies had readings varying from 110 to 160 cps, compared to a background activity of 90 cps.

In November 1993, SNL/NM Radiation Protection Operations (RPO) personnel conducted a beta/gamma radiation survey at Site 57B. All survey readings were approximately at background. In March 1994, RUST Geotech Inc. completed a surface gamma radiological survey of Site 57B. Four area-sources were identified, all associated with the debris mound on the west boundary of the site. Subsequent gamma spectroscopy analysis of soil samples collected at those locations indicated they are related to the granitic nature of the geologic material at those locations.

Constituents of Concern

57A: Metals, Semivolatile Organic Compounds (SVOCs), HE, Polychlorinated biphenyls (PCBs)

57B: Metals

Current Hazards

There are no current hazards at these sites related to the minimal soil contamination remaining in surface or subsurface soils. Site 57A contains an underground structure (two-room bunker) at the south end of the site approximately 70 feet south of the concrete gun mounts that will not support a heavy surface load. The bunker entrance is covered with a locked metal grate. Another entrance (secured from within the bunker and covered on the surface with approximately 1 foot of loose soil) is located approximately 15 feet south-southest of the grate. Site 57B has two conical pits approximately 15 feet in diameter and 8 feet deep near the north end of the site. They are not readily visible from a distance because of the vegetation cover at the site. When the clean-fill mound was removed in June-July 2001, the former tower bases were discovered to be anchored to a concrete slab approximately 12 feet below the surface. The tower footings were cut off about 3-4 feet below grade and covered over.

Current Status of Work

ER Site 57A:
A surface radiation survey and Voluntary Corrective Measure (VCM) was conducted in 1994 at Site 57A.

At Site 57A, the three soil mounds were sampled and removed along with the trash scattered across the site in the FY97. RCRA Faciliy Investigation (RFI) sampling was performed in January and February 1998. A risk-based no further action (NFA) was submitted to the NMED in September 1998. In December 1999, NMED indicated that the site was acceptable for NFA petition. The NFA was approved by NMED in October 2000 after completing the public review and permit modification process.

ER Site 57B:
Surface radiation surveys were conducted in 1993 and 1994 at Site 57B.

At Site 57B, RFI sampling was conducted in June and December 1996. A VCM was performed in April 1995 to remove the dry-cell battery debris from the site. Another VCM in March 1997 was performed to remove the equipment boxes and the burned remnants of the two towers (lumber, metal bolts and fasteners). A risk-based NFA was submitted to the regulatory authorities in September 1997. In December 1999, New Mexico Environmental Department (NMED) indicated that the site was acceptable for NFA petition. The NFA was approved by NMED in October 2000 after completing the public review and permit modification process. The clean-fill mound along the west side of the site was removed in June-July 2001. The tower base footings were cut off approximately 3-4 feet below grade and covered over. The site was reseeded in September 2001.

Future Work Planned

ER Site 57A:
No further work is planned.

ER Site 57B:
No further work is planned.

Waste Volume Estimated/Generated

ER Site 57A:
The waste from the 1994 surface radiation survey and VCM was consolidated into one 30-gallon drum for disposal offsite Site 193. The VCM to sample and remove the three debris mounds generated nine 55-gallon drums of non-regulated debris and one 55-gallon drum of regulated waste. Approximately 5 to 10 cubic yards of nonhazardous debris was also removed for disposal.

ER Site 57B:
The housekeeping VCM in March 1997 removed approximately 20 cubic yards of nonhazardous

debris. The "clean-fill" mound on the west side of the site and the former tower bases were removed in June-July 2001. Approximately 2,500 cubic yards of material was removed to the KAFB landfill.

Information for ER Site 57 was last updated Jan 15, 2002.